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TITLE: EXPANDED RESIN

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## INVENTOR-INFORMATION:

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US-CL-CURRENT: 521/91

INT-CL (IPC): C08L 101/00; C08K 3/22; C08K 3/22; C08K 3/36; C08K 3/36

## ABSTRACT:

PURPOSE: To obtain an expanded resin having gas adsorptivity, by firing natural calcareous diatomaceous earth and a silicate material, powdering them and incorporating the powder in an expanded resin.

CONSTITUTION: An expanded resin contains a powder obtd. by firing natural calcareous diatomaceous earth contg. silicic acid and aluminum oxide and a silicate material and powdering them. The expanded resin can be obtd., e.g., by mixing 3&sim;10wt% said powder with a base resin, e.g., polystyrene and then foam-molding the mixture into a desired shape. When a packaging box for transporting foods is formed with the expanded resin, the box is lightweight and has heat insulating effect and high hygroscopicity by the gas adsorption of ceramic powder so that smell is adsorbed and the maintenance of freshness can be greatly improved. Particularly when a fruit which spontaneously releases or absorbs ethylene gas, such as apple, is packed, the freshness can be greatly improved.

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**PTO: 2002-4341**

**Japanese Published Unexamined (Kokai) Patent Application No. S63-150353, published June 23, 1988; Application No. S61-297236, filed December 13, 1986; Int. CL<sup>4</sup>: C08L 101/00 C08K 3/22 3/36; Inventor: Jun Hoshino; Assignee: Hishino Yoshi Ten Corporation; Japanese Title: Hppou Jushi (Foam resin)**

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**Specification**

**Title of Invention**

**Claim**

**Foam resin, characterized in that, after a silicic acid and aluminum oxide containing natural calcareous diatom soil and a silicic raw material have been baked, a powder is formed to be mixed in the foam resin.**

**Detailed Description of the Invention**

**This invention pertains to foam resin that is used for wrapping materials and building materials.**

**The following conditions are predetermined for foam resin based on the use: the foam base resin; the foaming method; the foaming density; the structure of the air bubbles (a continuous or single type). There are various types of foam resin. The invention particularly targets forming resin that is used for wrapping materials and building materials (particularly heat insulating materials). Those use polystyrene for the wrapping materials as a resin base are most widely used. More specifically, this resin is formed into boxes by a hard foaming means so as to obtain transporting boxes for fruits, fresh fish and other foods. Or this resin**

is soft-foamed to obtain wrapping inserts. As for the building materials, using phenol resin or urea resin for resin raw materials, building materials with high frame resistance and high heat insulation are achieved.

It is widely known that auxiliary materials are added to the abovementioned various types of foam resin, such as reinforcing materials, coloring agents, heat insulating materials, etc. The invention is produced to offer foam resin with an auxiliary material that has a gas absorbing function.

The foam resin of the invention is formed by mixing a ceramic powder in the resin, which has a gas absorbing function. More specifically, this ceramic powder to be mixed is produced by a means such that a silicic acid and aluminum oxide containing natural calcareous diatom soil and a silicic raw material are baked and that the baked substance is then pulverized. The baking process is applied by using a conventional method as disclosed in Japanese unexamined patent application No. S61-72671. The obtained powder is mixed in a resin base at a weight ratio at about 3 to 10% to the amount of polystyrene if it is used, so as to foam the resin into a predetermined shape. When a transporting wrapping box for a food is formed out of the foam resin, the box will be light in the weight as similar to as in prior art foam resin containers and have a heat insulating effect. The hygroscopicity increases due to a gas absorption of the ceramic powder, and the smell is also absorbed. As a result, the maintenance of freshness significantly improves in comparison with that of prior art containers. In particular, the maintenance of the freshness extremely improves for foods that self-exhaust and -suction an ethylene gas such as apples. When the foam resin of the invention is used for a building material such as a heat insulating material, an effect that absorbs a toxic

smoke generated during a fire as well as the heat insulating effect is demonstrated. As described above, the foam resin of the invention is formed by mixing the ceramic powder in the foam resin, which has the gas absorbing property. The useful property of the ceramic is used in locations that cannot be used alone.

Translations Branch  
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